UNIVERSITY OF CAPE COAST

EFFECT OF LIQUIDITY MANAGEMENT ON THE FINANCIAL PERFORMANCE OF BANKS LISTED ON THE GHANA STOCK EXCHANGE

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature ---------- Date ----------

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Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature ---------- Date ----------

Name: Mr. Seyram Kawor

ABSTRACT

Effective liquidity management is instrumental in enhancing the very survival of the banking industry and instilling public confidence. The study examined the effect of liquidity management on the financial performance of listed banks in Ghana by employing data on nine listed banks from 2014 to 2018. The specific objective of the study was in respect of analysing the effect of liquidity and liability management on financial performance of listed banks. Financial performance was mainly measured by using returns on assets, returns on equity, profit margin and net interest margin. The study was based on the liquidity preference theory, and the explanatory design and the quantitative approach was also employed. The objectives of the study were analysed using least square regression model. The study found that the excessive increase in banks' liquidity and the conservative approach to managing liquidity by holding more of banks deposits and assets in liquid form negatively affects financial performance. The study further found that liability management of banks by way of accumulating more debts and deposits and investing them in long term assets or holding them in liquid form negatively affect short term profits. The study among other things recommended that management of listed banks should maintain liquidity ratios up to the estimated liquidity requirements of their firms and avoid the excessive pile up of liquidity and liquidity which reduce the economic value of their assets, returns and profitability.

KEY WORDS

Conservative

Financial Performance

Liability

Liquidity

Management

Returns

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DEDICATION

To my family

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LIST OF ACRONYMS/ABBREVIATIONS

CAR	Capital Adequacy Ratio
CR	Liquidity Ratio
CTR	Liquidity Turnover Ratio
Dep	Deposit
LFTA	Long Term Fund to Total Asset
LFTD	Long Term Fund to Total Deposit
LFTIBL	Long Term Fund to Total Interest Bearing Liabilities
NIM	Net Interest Margin
NPLs	Non-Performing Loans
PM	Profit Margin
ROA	Returns on Assets
ROE	Returns on Equity
TL	Total Liability

CHAPTER ONE

INTRODUCTION

Financial performance is one important outcome in the banking sector that defines the viability and soundness of banking firms and how banks can maximize the wealth of its stockholders. Similarly, liquidity management is arguably the most important aspect of banks short term management strategies which has implication on firm objective of maximizing stockholders' wealth. Due to the overriding importance of liquidity management, firms adopts strategies to manage and address their liquidity needs to ensure that the required financial performance is achieved. Liquidity management has a broader scope and it can be defined to include cash management and liability management among others. This study therefore examined the liquidity management strategies of listed banks and the relationship between the liquidity management strategies and financial performance.

Background to the Study

Effective liquidity management is an important concept that has implications on the overall activities of firms both small and large across the world. According to Gitman, Moses, and White (2016), the concept of liquidity management has evolved and the evolution of it is traced to the era of the Great Depression in the 1930s. The Great Depression of the late 1920s and the 1930s was the event that provided the impetus for the management of liquidity in terms of its sources, uses, risk and how it affects performance. Anjili (2014) had

asserted that managers had more concern to the capital structure issues and how the blend of equity and debts affected the financial performance of firms until the depression occurred. One major effect experienced by firms during the great depression period was that revenues of firms drastically reduced and firms that were highly leveraged with debt filed for bankruptcy as a result of liquidity crises. This development revealed the importance of liquidity management in business organisations. Liquidity is however said to be the most liquid asset of firms and the management of which lays important emphasis on the liquidity position of the firm. Based on the close relationship between liquidity and liquidity, Leung (2018) defined liquidity management as the management of the liquidity resources of an organisation in such a way that firms have sufficient liquidity balance with the profitability of firms.

Empirical studies (Hamdi & Hakimi, 2019; Partovi & Matousek, 2019) have shown that liquidity forms a fundamental part of banks operations and as a result low liquidity causes the instability of banks and the financial sector at large. According to Hakimi and Zaghdoudi (2017) low liquidity arises where banks cannot meet all the request of depositors either totally or partially for a given period. The World Bank (2019) has realised surge in banks liquidity risk position by remarking that low liquidity creates risk that dovetails into others such as credit risk and it is the major cause of financial instability to banks.

According the financial intermediation theory, banks key roles include providing liquid funds and as well transferring risks, hence liquidity assessment of banks is paramount to banks stability and financial performance (Adbelaziz, Rim

& Helmi, 2020). Banks that downplay the importance of liquidity assessment erode depositors' confidence, cause banks fragility and banks failures (Hakimi & Zaghdoudi, 2017). In the study of Hakimi and Zaghdoudi (2017) liquidity (measured as the ratio of total credit to total deposit) was found to significantly lower bank performance (measured in terms of net interest margin) among emerging economies.

In Ghana, the Banking Survey Report (2019) revealed that liquidity management is one of the three top issues which are considered by the Chief Executive Officers (CEOs) in the banking sector of Ghana as bank transactions survives on liquidity. The report further stated that one of the main factors that caused the revoke of the license of nine banks during the clean-up of the banking sector of Ghana included high levels of non-performing loans beyond acceptable limit (Banking Survey Report, 2019) which deteriorated the liquidity position of banks. This suggests that issue of liquidity among banks in Ghana requires frequent research and attention. The Banking Survey Report (2019) further revealed that low liquidity in the banking industry is one major challenge for banks and that threatens their survival and capital expansion. In percentage terms, 67% of banks' CEOs agree that low liquidity is the major challenge to all banks in Ghana. This means that liquidity is low among banks in Ghana and continuous investigation into this problem is required; especially in relation to how the management of liquidity affect banks financial performance such as net interest margin, net profit margin, and returns on asset (Megahed, Abdel-Khalek & AlAnsari, 2016).

Liability management according to Heyes (2020) includes the attempt of firms to use their liquid resources as well as other assets to minimise losses arising from the non-settlement of debt obligations on time. In the banking sector, banks incur liability when they accept deposits and issues securities such as certificate of deposits, commercial papers, and other debt instruments. Liability management therefore in the banking sector require strategies for granting loans to customers with high credit rating score and by setting maturity periods that will enhance their liquidity position. According to Heyes (2020), banks use the net interest margin; that is, the difference between interest received on loans and interest paid on deposits to management their liability positions.

The focus of the study on the banking industry was as result of the challenges that motivated the Central Bank of Ghana to consolidated five banks due in 2018. These challenges among other things include liquidity and liability management problems (Bank of Ghana, 2018). This study therefore examined the effect of liquidity management tools such as liquidity, liability and asset management on the financial performance of selected listed banks in Ghana.

Statement of the Problem

Developments in the banking sector of Ghana such as the takeover of two indigenous banks, UT Bank Ltd and Capital Bank Ltd, by GCB Bank Ltd and the consolidation of five banks in 2018 by the Bank of Ghana had raised keen interest in respect to the liquidity management of commercial banks in Ghana. According to the Bank of Ghana (2018), the need for the revocation of some banks' license

and the consolidation of some banks was mainly due to the insolvency (liquidity management problems) of the banks. Other implications are that banks in Ghana require effective liability and liquidity management to curb the level of insolvency in the industry. Consequently, the increase in the minimum capital requirement of the Bank of Ghana from GHS200million to GHS400million forced 11 banks (representing 32% banks) to wind up leaving only 23 banks in the banking industry of Ghana. The 11 banks were assessed as insolvent but out of the 11 banks, five of them were consolidated and six of them exited the banking sector by means of mergers (Ghana Banking Survey, 2019).

The takeovers, revocation of banks' license and mergers of banks created a new twist of events which have implications for banks. For example, the Banking Survey Report (2019) had revealed that following the clean-up in the banking industry effective from 2017, there has been a reduction in deposit by 17% and liquidity challenges arising from panic withdrawal increased by 13%. This implies that commercial banks require effective liquidity management strategies to overcome this problem. Similarly, the banking industry in 2018 reported a decline in its financial performance measured by the returns to equity (17.9% in 2018) compared with the figure for 2017 (19.7%); and with this performance indicator, only ten out of the twenty-three banks performed above the industry average (Ghana Banking Survey, 2019).

Owing to the above submission, the Bank of Ghana (2019) had indicated that innovative and careful liquidity management practices are required to reinforce the performance of banks in Ghana. However, currently, there is weak

evidence in literature in respect of the liquidity management strategies of banks in Ghana and how those strategies influence financial performance. This dearth in literature presented the gap which this study sought to fill. This therefore examined the effect of liquidity management on the financial performance of selected banks listed on the Ghana Stock Exchange.

Purpose of the Study

The main purpose of the study was to investigate the liquidity management strategies of banks in Ghana and how liquidity management of banks influenced their financial performance.

Research Objectives

The study was based on the following objectives:

1. To analyse the liquidity management strategies of listed banks in Ghana
2. To assess the effect of cash management on the financial performance of listed banks in Ghana
3. To assess the effect of liquidity management on the financial performance of listed banks in Ghana
4. To examine the effect of liability management on the financial performance of listed banks in Ghana.

Research Questions

1. What are the liquidity management strategies of listed banks in Ghana?
2. What is the effect of cash management on the financial performance of listed banks in Ghana?
3. What is the effect of liquidity management on the financial performance of listed banks in Ghana?
4. What is the effect of liability management on the financial performance of listed banks in Ghana?

Significance of the Study

The study is relevant for policy direction by management of commercial banks in Ghana. That is, the findings of this study provided a direction to banks in the banking industry of Ghana regarding the liquidity management strategies that are used in enhancing the financial performance. The study also enabled management of commercial banks in Ghana to appreciate the influence of proper liquidity management, cash management and liability management on the financial performance of banks. This result of the study can enable them to strategize by redefining their liquidity management strategies for improvement in the financial performance.

The findings of this study are also useful for the Bank of Ghana which regulates the commercial banks in Ghana. That is, the Bank of Ghana can rely on the findings of this study to provide policy direction and well as to shape its directives to commercial banks that are in respect of liquidity management,

liquidity management and liability management. Finally, the study was relevant to literature by contributing to bridging the gap in Ghana by providing evidence on the liquidity management strategies of Banks and how liquidity management affects financial performance of banks.

Delimitation

The scope of the study covered all banks listed on the Ghana Stock Exchange. According to the Ghana Stock Exchange Annual Report (2018), nine banks were listed on the Ghana Stock Exchange and these banks were the Access Bank (AB), Agricultural Development Bank (ADB), CAL Bank (CB), Ecobank Ghana Limited (EBG), Ghana Commercial Bank Limited (GCB), Republic Bank Ghana Limited (RB), Standard Chartered Bank Ghana Limited (SCB), Societe Generale Ghana Limited (SG), and the Trust Bank (TB). Data for the study covered a period of five years from 2014 to 2018. The study obtains data on liquidity, liquidity flow, and liability indicators as well as financial performance indicators including such as returns on asset, returns, on equity, net interest margin and profit margin for the remaining eight banks over the five year period.

Limitation of the study

The study was limited to only 9 banks out of the 23 universal banks in Ghana. This was due to the fact that the study focused on banks listed on the Ghana Stock Exchange due to the availability of information on those banks. The non-inclusion of all banks in the study could lead to some variation in the

evidence found and may not substantially reflect the true state of affairs of all commercial banks in Ghana. The study was therefore limited in this regard.

Definition of Terms

Liquidity management: Liquidity management was operationally defined by this study as the planning, organisation, and controlling of liquid resources, and the inflows and outflows of cash by banks.

Financial Performance: Financial performance was defined by this study to include the quantitative measurement of the financial results arising out the yearly operations of banks and they include returns on assets, returns on equity, net interest margin, and profit margin.

Organisation of the Study

This study was organized into five chapters. Chapter one dealt with the introduction to the study and the issues discussed in chapter one includes the background of the study, the statement of the problem, research objectives and questions, significance of the study and delimitations, limitation, as well as definition of key terms. Chapter two dealt with the review of literature where the theoretical foundation of the study; conceptual and the empirical reviews were discussed. Chapter three presented the research methods and issues relating to research design, data collection procedure and the analysis and presentation of data. Chapter four of this study focused on the results and discussions while

chapter five looked at the summary, conclusions and the recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presented the review of literature on the thematic areas of this study. The literature review was in respect of the liquidity management strategies of banks, liquidity flow management, liquidity and liability management as well as financial performance of banks. The review in this chapter stated with the theoretical review, followed by the conceptual review and finally the empirical review.

Theoretical Review

The theory that provided the inter-linkages among the thematic areas of this study and which relates liquidity management to financial performance was identified to be the liquidity preference theory.

Liquidity Preference Theory

The liquidity preference theory was propounded by Keynes (1936), when he wrote his book with the title the "General Theory of Employment, Interest and Money" in response to helping solve the economic burst during the great depression of the 1930s. The theory was pivoted on the reasoning that individuals and firms prefer to hold their money in liquidity or liquid form for transactional, speculative and precaution purposes (Ogiriki, 2014). In the context of banking institutions and in regard to transactional motives, Keynes explained money is

required in liquid form to transact daily expenditures that are recurrent and capital in nature. By this means, banks require to keep liquid resource or liquidity for the payment of salary, to meet withdrawal needs of customers, purchase office supplies and equipment and to pay for marketing and banks promotional expenditures. The demand for money in liquid form in respect of precautionary motives is in terms of creating avenues for banks to insure themselves against future unforeseen expenditures and circumstances. For example, banks may keep enough liquidity balances to meet the unusual drawings of depositors to maintain their confidence (Ogiriki, 2014). On the basis of speculative purpose, the liquidity preference theory requires banks to keep liquid resources to take advantage of interest bearing assets and securities that can offer high returns for their organisation (Andabai, 2010).

Based on the fact of keeping money for transactional, speculative, and precaution purposes, the holding of money in liquid form can have implication on the financial performance of banks if too much or too little liquidity is held (Ibenta, 2012). For example, a bank that creates more assets through high loan portfolio is more likely to suffer liquidity risk and challenges in the form of non-performing loans and which can affect the net interest margin and the profit margin. Keeping too little of liquid liquidity implies that banks have little liquidity to meet the withdrawal needs of customers and this can lead to loss of confidence and cause panic withdrawal which can make the bank fall into liquidity crises and stringent bail-out requirements (Ogbonnaya et al., 2016). On

the other hand, banks that keep too much liquid or idle liquidity may lose through the opportunity cost of holding money.

The liquidity preference theory further stipulates that the amount of liquidity or liquid balance which firms hold depends on the level of interest rate. For example, lower real rate of interest does not motivate banks to grant loans since hence they will keep too much liquidity and suffer in terms of lower net interest margin and profit margin (Akhwale, 2014). On the contrary, higher real rate of interest will motivate banks to grant more loans and invest more in government securities such as bonds and Treasury bills, leaving them with lesser liquid balances. This situation can pose bi-directional effect on the financial performance of banks (Ibe, 2013). The first effect is positive where banks make gains through higher rate of returns on loans and interest income securities, all other things being equal. The second effect is negative where banks will have to struggle with liquid funds to meet their debt obligations and current transactional needs.

In the event of the above argument, banks have the option to resort to raising funds from the money market to cushion their liquidity gap; but this directly affects the leverage and increase the risk of insolvency, all other things held constant. Based on liquidity preference theory therefore, commercial banks have the motivation to keep liquid liquidity for various purposes and the level of liquid liquidity held by banks have both direct and indirect consequence on their financial performance. It therefore behooves on banks to adopt effective liquidity

management strategies to manage their liquidity and liability positions for higher performance.

Liquidity Management Models

Among the models used to manage liquidity are the Baumol model and the Miller –Orr model. These models help in determining the optimal level of liquidity that will meet the liquidity requirement of firms.

Baumol Model

This model enables firms to estimate the optimal quantity of liquidity required for business activities. This model employs the concept of inventory management to estimate the quantity of liquidity which when ordered will minimise both the transaction cost and opportunity cost of capital (Banafa, Muturi & Ngugi, 2015). According to Awad and Jayyar (2013), there is opportunity cost of holding more liquidity than is required. The opportunity cost come in the form of losing the interest income if idle liquidity were to be invested against the time value loss of money for not investing the liquidity (Banafa, Muturi & Ngugi, 2015). The Baumol model was based on over simplistic assumptions that which by themselves are the limitations of the model. The model assumes that the transaction cost associated with changing non-liquidity securities into liquidity is the same at all times; that firms should be able to produce same amount of liquidity at regular time periods, with constant opportunity cost of capital (Ayako, Githui, & Kungu, 2015). Despite the limitations of model, it nevertheless serves

as important instrument to guide firms to set optimal level of liquidity requirements.

Miller-Orr Model

This model enables firms to also estimate the upper and the lower limits of liquidity requirement with the objective of preventing holding too much or too little liquidity (Cagle, Campbell & Jones, 2013).. The relevance of this model is seen in the consequences that firms face when they have excess or shortage of liquidity. The assumptions that underlie the use of the Miller-Orr model include the facts that firms have stochastic inflow and outflow of liquidity balances; liquidity balances are symmetrically distributed; it is not impossible to invest idle liquidity in short terms securities; marketable securities are sold or purchased at transactions costs; and firms keep lower level of liquidity balances at all times (Dabiri, Yusof, & Wahab, 2017). The Miller-Orr model is useful for managing liquidity by helping firms to set lower and upper limits of liquidity balances and allowing them to estimate the level of liquidity at which they must order for liquidity.

Conceptual Review

Liquidity Management

The term liquidity is defined as the ease and ability for firms to convert assets into liquidity without losing value. The management of liquidity is therefore an aspect of liquidity management. According to Durrah, Rahman, Jamil

and Ghafeer (2016), liquidity management has to do with the ability of firms to settle their short term debts using its liquidity and current resources. Liquidity management has a broader scope in the sense that it requires firms to generate enough liquidity balance to make payment for operating expenses of all kinds as well as to purchase fixed assets for the use of the firm. Poor liquidity management put financial stress on firms and for some firms; they resort to borrowings which in the end increase their leverage and the risk of insolvency. Excessively poor liquidity ratios in the form of quick ratio, current ratio, and liquidity ratio among others are precursors to the fact that a firm has deteriorating liquidity position (Sinha, 2012).

Factors that affect Liquidity of Banks

The study of Nyabate (2013) outlined three key factors that affect the liquidity position of firms: asset quality, macroeconomic factors, and banks' capital structure.

Asset quality

Asset quality of banks in the form of credit risk largely determines the liquidity position of banks. Banks create assets by means of converting deposits into loans portfolios. High rate of non-performing loans therefore pose credit risk for banks and this leads to the impairment of the banks' assets. Banks that have large number of their loan customers defaulting on their loan repayment are subjected to high credit risk and such banks are said to have low asset quality.

Low asset quality also means that banks have less liquid funds to meet the withdrawing needs of depositing customers hence such banks fall into liquidity challenges and they are compelled to borrow from the money market at higher rates of interest to buffer their liquidity shortfalls. In line with the above argument, Muhammad, 2013) observed that banks with low asset quality have liquidity challenges and this produce negative effect on their profitability.

Macroeconomic factors

In the period of the 1930s, the consequence of the great depression led to revenue shortfalls of banks and firms in general and this was as a result of reduction in the income levels of individuals. This means that low incomes levels in an economy discourage savings and increase the demand for money through borrowing (Sibikov, 2019). Thus, as an economy experience economic downturn with falling incomes level banks are unable to increase their level of revenue mobilization through deposits and this affects their ability to create more assets through the given out of loans.

Rauch (2018) has further submitted that increasing levels of the risk-free rate of the central bank largely affect the liquidity of banks negatively. This occurs through the mechanism where investors prefer to lend their money to the government at the attractive risk free rate than to lend to commercial banks. The direct effect is that commercial banks will lack the ability to attract enough deposit from the investing public and this will lead to liquidity and liquidity problems.

Capital structure

Capital structure refers to the mixture of equity and debt in the capital composition of firms. According to Ehiedu (2014) firms that are highly leveraged with debt are more likely to face liquidity challenges through high and frequent payment of interest on loans. With firms that are highly geared with extremely high loan book, credit investors use resort to restrictive covenants to prevent such firms from attracting further borrowing until the current loan debt is settled (Vieira, 2010). This means that under such as circumstance, firms that are under such covenants are unable to resort to further borrowing to beef up their liquidity shortfalls.

Strategies Banks used in Managing Liquidity

There are tools used by banks in managing their liquidity position. These include the liquidity gap analysis and the Basel Accord on liquidity and liquidity management.

Liquidity gap analysis

Liquidity gap according to Barnes (2010) is defined as the gap or difference between banks assets and liabilities at the present time period and in the future time period. The liquidity gap of a firm is positive when the assets of the firm are greater than the liabilities of the same entity and its negative when the assets of the firm for the period of analysis fall short of the liabilities. Liquidity gap for banking organisations can be largely shaped by the volumes of deposits

and withdrawals by banks customers as well as the quantity of loans that banks create within a given period. Important information conveyed by liquidity gap analysis is that it tells banks' management about the financial conditions of the firm and how it is likely to change from time to time into the long term period. Banks with negative liquidity gaps must pay special attention to their liquidity balances and find out ways to beef up their liquidity balanced in order to meet the liability requirements.

The Basel Accord

Banks in the G10 countries are guided by several regulations and directives and one key regulation which banks follows as guide to ensuring better liquidity position is the Basel Accord. The Basel Accord is a set of financial reforms developed by the Basel Committee on Banking Supervision with the objective of strengthening the supervision, regulations, and risk management of banks (Andreas, Hess & Wanzenried, 2014). So far, there three Basel Accords and each successive Basel Accord add to the previous one. With particular reference to the Basel III Accord, there are three key requirements that banks in the G10 countries are required to comply with. Even though the requirements apply to the G10 economies, banks in other economies can rely on the Basel principles and requirements to management their liquidity and liquidity positions. The principles of include those on minimum capital requirements, leverage ratio, and liquidity requirement (Schmitt, 2015).

On the minimum capital requirement, the Basel III accord raised the minimum capital requirements for banks from 2% (Basel II accord) to 4.5% (Basel III accord) of common equity, as a percentage of the bank's risk weighted index. There was another 2.5% capital requirement to be used as buffer that brought the total minimum capital requirement to 7% with the effect that banks who are in liquidity challenges could fall on the 2.5% as a buffer (Schmitt, 2015). According to Cooke, Koch, and Murphy (2015), this requirement makes banks less profitable but improves their liquidity position. The Basel III further introduced a non-risk-based leverage ratio to serve as a backstop to the risk-based capital requirements. Banks are required to hold a leverage ratio in excess of 3%.

Finally, the Basel III accord introduced the liquidity coverage ratio, originally maintained at 60% of banks stated requirement, which requires banks to maintain sufficient liquid assets that can withstand 30-day stressed funding scenario. The second ratio that was introduced was the net stable funding ratio which requires banks to maintain stable funding amount beyond the required amount of stable funding for a period of one year of extended stress scenario (Krishnamurthy & Weymuller, 2017).

Liability Management

Liability management is the practice by banks of maintaining a balance between the maturities of their assets and their liabilities in order to maintain liquidity and to facilitate lending while also maintaining healthy balance sheets. In this context, liabilities include depositors' money as well as funds borrowed from

other financial institutions (Jawed & Kotha, 2020). A bank practicing liability management looks after these funds and also hedges against changes in interest rates. A bank can face a mismatch between assets and liabilities because of illiquidity or changes in interest rates; and liability management reduces the likelihood of a mismatch.

A bank must pay interest on deposits and also charge a rate of interest on loans. To manage these two variables, bankers track the net interest margin or the difference between the interest paid on deposits and interest earned on loans. Banks began to actively manage assets and liabilities in the 1960s by issuing negotiable certificate of deposits (Alper & Anbar, 2011). These could be sold prior to maturity in the secondary market in order to raise additional capital in the money market. Also known as asset/liability management, this strategy plays an important in the health of a bank's bottom line. During the run-up to the 2007–08 financial crises, some banks mismanaged liabilities by relying on short-maturity debt borrowed from other banks to fund long-maturity mortgages, a practice that contributed to the failure of some financial giants such as Northern Rock (Asiri, 2017).

Financial Performance

Return on asset (ROA) and return on equity (ROE) have been used extensively as measures of bank performance. ROA shows how effectively a bank is managing it assets, to generate income. It is the income earned on each unit of an asset usually expressed as a percentage. The challenge with ROA is that it

excludes from the total assets off-balance sheet items thereby understating the value of assets. This situation can ultimately create a positive bias where ROA is overstated in the evaluation of bank performance. Nevertheless, (Golin, 2017; Rose & Hudgins, 2008) have argued that ROA is one of the most important measures of profitability in recent banking literature. Studies (Haron, 2004; Hassan & Bashir, 2003; Naceur, 2003) have all adopted ROA as a measure of profitability.

Return on Equity (ROE) is considered as an alternative measure of profitability and it is computed by dividing net income by equity. It measures the income earned on each unit of shareholders' funds. The shortfall of this measure is that banks with high financial leverage tend to generate a higher ratio. Yet, banks with high financial leverage tend to have higher financial risk and therefore higher possibility of bankruptcy. Financial performance can also be measured in term of net interest margin which is the net interest income divided by the average operating assets, and profit margin which is profit after tax divided by total operating income. Thus, this study measured financial performance using indicators such as profit margin, returns on assets, returns on equity and net interest margin.

Empirical Review

The study reviewed literature in relation to the relationship between liquidity flow management, liquidity management, asset management and financial performance of banks.

Relationship between Cash Management and Financial Performance

On the relationship between cash management and financial performance of firms, the study of Kinyanjui, Kiragu and Kamau (2017) examined the effect of cash management practices on financial performance of firms in Kenya by sampling 62 small firms and data was analysed using both descriptive and inferential statistics. Cash management practices were measured by the use of technology, cash holding practices and cash pooling practices. The findings of the study revealed that the use of technology in managing cash and cash holding practices positively affect the financial performance of firms.

Furthermore, the study of Ogbonnaya, Ekwe and Uzoma (2016) analysed the relationship between cash flow and financial performance of banks listed on the Nigerian Stock Exchange using data from 2005 to 2013 and employed correlational analysis. Financial performance was measured by net profit after tax while cash flow was measured by operating cash flow, investing cash flow, and financing cash flow. The result of the study showed that operating cash flow significantly relates to financial performance and the relationship was found to be positive. By comparison, the findings in the study of Kinyanjui, Kiragu and Kamau (2017) and Ogbonnaya, Ekwe and Uzoma (2016) pointed towards the conclusion that cash flows management has positive effect on financial performance. These studies have also revealed that cash flow management techniques ranges from the use of both quantitative variables such as operating, investing and financing cash flows to qualitative variables such as using technology to manage cash flows.

There are also studies that revealed that cash flow management of firms were weak and therefore does not significantly affect the financial performance of firms. Example of such studies is the study of Sulayman (2014) whose study revealed that cash flow management of financial institutions in Jordan was ineffective and hence did not significantly enhance their performance. Another example of was the study of Amuzu (2010) who examined the cash flow management and the financial performance of firms listed on the Ghana Stock Exchange. The findings of his study revealed that some firms had weak cash flow management which did not affect their financial performance significantly, but firms with good cash flow management had significantly influence on their financial performance. The study of Khozhdel (2006) on the nexus between cash flow management and operating earnings in Tehran further confirmed the findings of Amuzu (2010) that effective cash flow management positively relate to the returns on assets and returns on equity of firms. Based on the studies reviewed, this present study expected a positive relationship between effective cash flow management and the financial performance of banks listed on the Ghana Stock Exchange.

Relationship between Liquidity Management and Financial Performance

On the relationship between liquidity management and financial performance, there are studies that have revealed significant relationship between the two variables. In Ghana for example, Li, Musah, Kong, Mensah, Antwi, Bawuah, Donkor, Coffie, and Osei (2020) examined the nexus between liquidity

and the financial performance of non-financial firms listed on the Ghana stock exchange. The study of Li, et al (2020) employed data from 2008 to 2017 and used the generalized least square regression model to analyse the data. The findings of the study showed that liquidity has indirect adverse and significant effect on financial performance indicators such as returns on equity but the relationship between liquidity and returns on asset was not significant even though it was positive.

There are also other studies that have shown evidence of conflicting results on the relationship between liquidity management and financial performance of firms. Example of such studies is the study of Kanga and Achoki (2017) who employed ordinary least square regression model to examine the relationship between liquidity and financial performance of non-financial firms in Kenya. The findings of the study of Kanga and Achoki (2017) revealed that liquidity has direct influence on financial performance indicators such as returns on assets and returns on equity. This finding had been confirmed by studies such as that of Ali and Bilal (2018) whose study in the context of Jordan showed a significant positive relationship between liquidity and returns on assets. From the context of the Dutch economy also, Schulz (2017) conducted a study on more than 3000 unlisted financial firms by employing correlation analysis. The study showed that firms' liquidity position has negative effect on financial performance indicators such as the returns on capital employed as well as on returns on assets

In Ghana the study of Opoku (2015) examined the association between liquidity management and performance of trading firms by employing data from

the period of 2005 to 2009 on 33 firms. The study defined and measured liquidity in terms of the liquidity cycle, the average collection and payment days. The conclusion drawn from the study revealed that liquidity does not impact on the financial performance of trading firms in Ghana. In the context of Mongolia, the study of Batchimeg (2017) provided confirmation to the findings reached in the study of Opoku (2015) by stating that liquidity is not a significant determinant of profitability of firms. Even though the findings on the relationship between liquidity and financial performance is not certain, the bulk of evidence and in line with theory suggests that effective liquidity management should influence the performance of firms. This present study therefore expected a positive relationship between effective liquidity management and the financial performance of listed banks in Ghana.

Relationship between Liability Management and Financial Performance

The relationship between liability management and financial performance of firms has been investigated by a number of recent studies including the study of Anjili (2014) whose objective was to examine the effect of liability management on financial performance of commercial banks in Kenya by employing data between 2004 and 2013. Liability management was measured using the elements in the CAMEL framework (capital adequacy, asset quality, management efficiency, liquidity and operational efficiency). The study employed descriptive statistic and found that liquidity, operational efficiency, capital

adequacy, management efficiency, and asset quality significantly and positively influence the financial performance of firms.

In Ghana, Gyekyi (2011) examined the nexus between liability management and the profitability of National Investment Bank. The findings of the study showed that there is a positive relationship between liability management and profitability with the explanation that increased liability of the bank reduced its profitability while the reduction of the banks' liability increased the profitability of the bank. The study of Belete (2013) provided contrary evidence to the link between liability management and financial performance by putting forward the hypothesis that the rate of cost on liabilities is negative and varied across liabilities. The study used ordinary least square regression model to test the hypothesis which revealed that liabilities of banks mainly through deposits, customers' savings and other credit created balances of the bank have negative effect on the financial performance of banks.

The study of Tee (2017) in the context of Ghana assessed the relationship between liability and asset management and the profitability of listed banks by employing the least square regression model. The study measured liability management by the total liability of banks and the returns on assets was used as the proxy for banks' profitability. The result of the study revealed that savings, deposits and other liabilities of the bank have negative effects on the returns on assets of listed banks in Ghana. Based on the above findings, the study expected a significant relationship between liability management and financial performance.

Conceptual Framework

The framework in Figure 1 provided the pictorial representation of the variables of the study and how the variables used in the study link up to the various objectives of the study. From Figure 1, financial performance was the dependent variable measured by returns on assets, returns on equity, profit margin and net interest margin. The independent variables were cash management, liquidity management, and liability management.

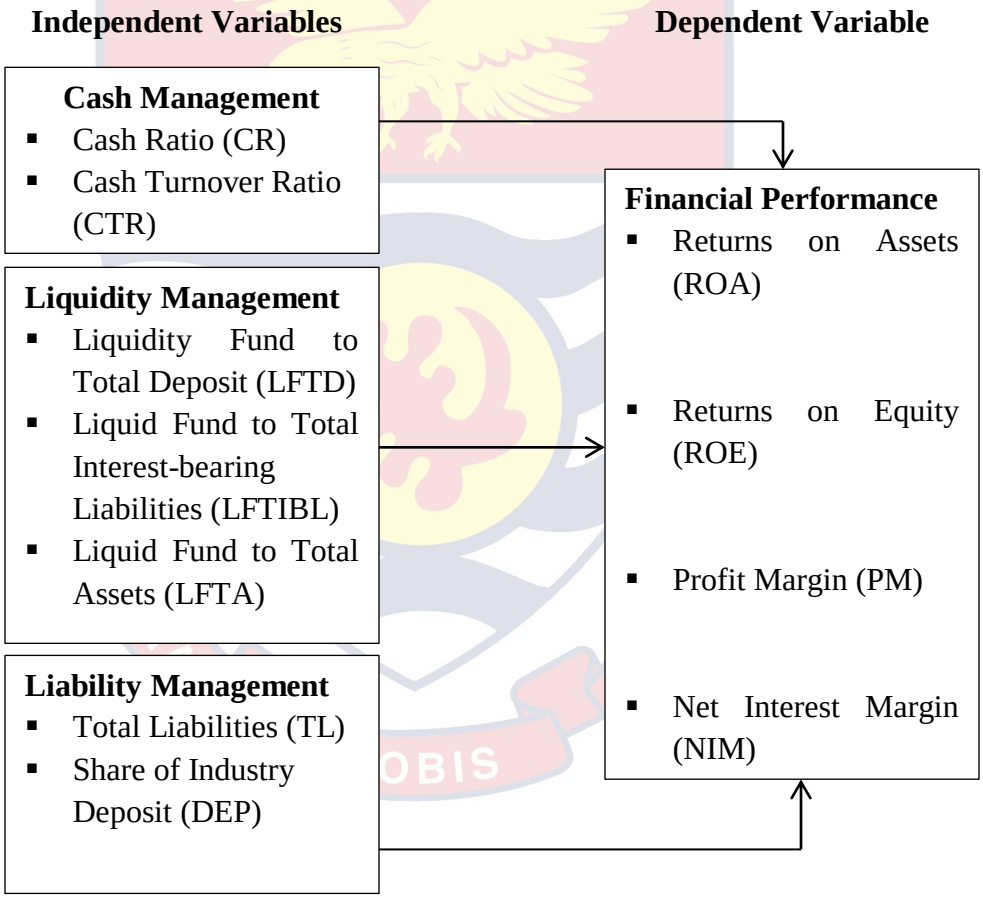

Figure 1: Conceptual Framework

Source: Author's construct

Based on Figure 1, the study measured cash management by the cash ratio (CR) and the cash turnover ratio (CTR). Liquidity management was measured by three ratios: Liquidity Fund to Total Deposit (LFTD), Liquid Fund to Total Interest-bearing Liabilities (LFTIBL), and Liquid Fund to Total Assets (LFTA). Liability management was measured by two ratios: Total Liabilities (TL) and Share of Industry Deposit (DEP). Financial performance was measured by four indicators: Returns on Assets (ROA), Returns on Equity (ROE), Profit Margin (PM), and Net Interest Margin (NIM).

Chapter Summary

This chapter dealt with the literature review on the objectives of this study. Issues presented in this chapter include the conceptual review in terms of liquidity management and financial performance of banks; the theoretical review; empirical review and the conceptual framework which put the objectives of the study into correct perspective.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter focused on the research methods and procedures followed in addressing the effects of liquidity management on the financial performance of banks listed on the Ghana Stock Exchange (GSE). The chapter discussed the research design and approach, source of data, brief background of the study banks, variables' measurement, model specification and data.

Research Design

The study employed the explanatory design in analysing the relationship between credit risk management and financial performance of listed banks in Ghana. Research design is the overall blueprint that the study follows in achieving the objectives of the study. The explanatory research design refers to as the causal research and it provides the extent to which one or more variables influence another variable (Zikmund, Babin, Carr, & Griffin, 2012). Explanatory design focuses on an analysis of a situation or a specific problem to explain the patterns of relationships between variables.

There are some advantages related to the employment of explanatory design. Firstly, it plays important role in terms of identifying reasons behind a wide range of processes, as well as, assessing the impacts of changes on existing norms, processes on another variable. The main disadvantages associated with explanatory study are that coincidences in events may be perceived as cause-and-

effect relationships. It can also be difficult to reach appropriate conclusions on the basis of causal research findings. This is due to the impact of a wide range of factors and variables in social and economic environment. In other words, while casualty can be inferred, it cannot be proved with a high level of certainty. It certain cases, while correlation between two variables can be effectively established; identifying which variable is a cause and which one is the impact can be a difficult task to accomplish.

Research Approach

Research approach generally considers the choice between qualitative and quantitative studies or a mixture of the two. According to Aliaga and Gunderson (2005), quantitative research approach deals with explaining phenomena by collecting numerical data that are analysed using mathematically based methods while qualitative research approach answer questions about why and how people behave in the way that they do and providing in-depth information about human behaviour. Generally, quantitative research uses data collection approach such as surveys, observations where numerical data can be ascertained and secondary data sources. Considering the objectives of this study where quantitative variables are utilised, it sufficed to adopt the quantitative research approach.

Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Babbie, 2010). The main objective of quantitative research is to assess the relationship between variables; and also to examine the cause and effect

relationship between variables. It also underscores how a manipulated variable influences another variable under a defined condition and setting (Mujis, 2010). Quantitative research deals with numbers, logic, and an objective stance and also focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning (Babbie, 2010). The main advantage with the employment of quantitative approach is that it allows for replication of the same phenomenon and therefore has high reliability level. This study adopted the quantitative approach because it allows for the measurement of the impact of one or more variable (liquidity management) on another set of variables (financial performance).

Study Organisations

The study focused on the banking industry of Ghana but directly focused only listed banks in Ghana. According to the Ghana Stock Exchange (2019), there are total of nine commercial banks listed on the Ghana Stock Exchange. These banks are Access Bank, Agricultural Development Bank, CAL Bank, Ecobank Ghana Limited, Ghana Commercial Bank Limited, Republic Bank Ghana Limited, Standard Chartered Bank Ghana Limited, Societe Generale Ghana Limited, and the Trust Bank. This study therefore obtained data on all the nine listed banks in Ghana. The study used only listed banks due to the issue of data accessibility. With listed banks, data on the variables used for this study were ascertainable from the financial statements that were published at the website of the Ghana Stock Exchange. Table 1 provides brief description on the listed banks

in Ghana. From Table 1, the share price and bank branches information relate to 24th July 2020 and the ownership status reflects the majority of ownership of shareholders of the banks.

Table 1: Description of Listed Banks in Ghana

Name	Year Listed	Share Price	Branches	Ownership
Access Bank	2016	4.39	47	Foreign
Agricultural Development Bank	2016	5.06	83	Local
CAL Bank	2004	0.65	30	Local
Ecobank Ghana	2006	1.42	67	Foreign
Ghana Commercial Bank	1996	3.80	184	Local
Republic Bank Ghana	1995	0.40	42	Foreign
Standard Chartered Bank Ghana	1990	15	22	Foreign
Societe Generale Ghana	1995	0.62	40	Foreign
The Trust Bank	2002	0.34	20	Foreign

Source: Ghana Stock Exchange (2020)

Based on the information provided in Table 1, the Standard Chartered Bank has the highest share price of GHS15.00 with The Trust Bank having the lowest share price of GHS0.34. In terms of coverage and reach as measured by the number of bank branches, the Ghana Commercial Bank has the highest coverage with 184 branches and The Trust Bank has the lowest reach with 20 branches. Furthermore, only three out of the nine listed banks have local ownership status. Data for the study was collected from 2014 to 2018.

Measurement of Variables

The study analysed the objectives by using four key variables: liquidity management, cash management, liability management and financial performance. Cash management was measured using the cash ratio and the liquidity turnover ratio. Liquidity management was measured by three ratios: Liquidity Fund to Total Deposit (LFTD), Liquid Fund to Total Interest-bearing Liabilities (LFTIBL), and Liquid Fund to Total Assets (LFTA). Liability management was measured by two ratios: Total Liabilities (TL) and Share of Industry Deposit (DEP). Financial performance was measured by four indicators: Returns on Assets (ROA), Returns on Equity (ROE), Profit Margin (PM), and Net Interest Margin (NIM).

Source of Data Collection

The data collected for this study was from secondary sources – from the financial statements of listed banks that are published at website of the Ghana Stock Exchange and the Ghana Banking Survey (2019) report provided by the Price Waterhouse Coopers (PwC). Data was collected for five year period from 2014 to 2018 and this period was selected based on data availability on listed banks. Data on total liability was obtained from the financial statements of the listed banks while data on liquidity flow management, liquidity management, liability management, and financial performance were obtained from the Ghana Banking Survey (2019) report.

Data Processing and Analysis

Data collected for this study was processed using econometric views (e-views) and Microsoft Excel. However, the analysis of the four objectives was done using panel multiple regression (pooled ordinary least square regression). The reasons which accounted for the use of the pooled ordinary least square regression were due to the advantages it possesses. According to Gujarati (2011), the pooled ordinary least square regression estimation technique is able to absorb the heterogeneity in panel data values. Secondly, the pooled ordinary least square regression provides more informative analysis of data values with less collinearity among variables and also enhances more efficiency.

Model Specification

The model specification from the pooled ordinary least square regression analysis for the various objectives of the study is presented by equations (1) to (3). From the equations liquidity was represented by the ratio of total liquid funds to total deposits (LFTD), the ratio of liquid funds to total assets (LFTA) and the ratio of liquid funds to total interest-bearing liabilities (LFTIBL). Financial performance was represented by returns on assets (ROA) and returns on equity (ROE), profit margin (PM) and net interest margin (NIM). Liability management was measured by Total Liabilities (TL) and Share of Industry Deposit (DEP) while liquidity flow management was represented by the liquidity ratio (CR) and the liquidity turnover ratio (CTR). Objective 1 which analysed the liquidity management strategies of listed banks was analysed descriptively.

Model specification for objective 2:

Financial Performance = *f*(Cash Management) (1)

$ROA_{it} = \alpha + \beta_1 CR_{it} + \beta_2 CTR_{it} + \mu_{it}$ (a)

$ROE_{it} = \alpha + \beta_1 CR_{it} + \beta_2 CTR_{it} + \mu_{it}$ (b)

$PM_{it} = \alpha + \beta_1 CR_{it} + \beta_2 CTR_{it} + \mu_{it}$ (c)

$NIM_{it} = \alpha + \beta_1 CR_{it} + \beta_2 CTR_{it} + \mu_{it}$ (d)

Where ROA is returns on assets, ROE is returns on equity, PM is profit margin, NIM is net interest margin, CR is cash ratio, and CTR is cash turnover ratio.

Model specification for objective 3:

Financial Performance = *f*(Liquidity Management) (2)

$ROA_{it} = \alpha + \beta_1 LFTD_{it} + \beta_2 LFTA_{it} + \beta_3 LFTIBL_{it} + \mu_{it}$ (a)

$ROE_{it} = \alpha + \beta_1 LFTD_{it} + \beta_2 LFTA_{it} + \beta_3 LFTIBL_{it} + \mu_{it}$ (b)

$PM_{it} = \alpha + \beta_1 LFTD_{it} + \beta_2 LFTA_{it} + \beta_3 LFTIBL_{it} + \mu_{it}$ (c)

$NIM_{it} = \alpha + \beta_1 LFTD_{it} + \beta_2 LFTA_{it} + \beta_3 LFTIBL_{it} + \mu_{it}$ (d)

Where LFTD is liquid fund to total deposit ratio, LFTA is ratio of liquid fund to total assets, and LFTIBL is the ratio of liquid funds to interest bearing liabilities.

Model specification for objective 4:

Financial Performance = *f*(Liability Management) (3)

$ROA_{it} = \alpha + \beta_1 TL_{it} + \beta_2 Dep_{it} + \mu_{it}$ (a)

$ROE_{it} = \alpha + \beta_1 TL_{it} + \beta_2 Dep_{it} + \mu_{it}$ (b)

$PM_{it} = \alpha + \beta_1 TL_{it} + \beta_2 Dep_{it} + \mu_{it}$ (c)

$$NIM_{it} = \alpha + \beta_1 TL_{it} + \beta_2 Dep_{it} + \mu_{it} \quad (d)$$

Where TL is total liabilities and Dep is Deposit

Model diagnostics

The study also checked for the goodness of fit of the estimated regression model by checking the size of the R^2 and the adjusted R^2 and the probability value of the F-statistic. The study also checked the status of serial correlation in the residual of the model by checking the size of the Durbin-Watson statistic. If the Durbin-Watson statistic was approximately 2 then the model had no autocorrelation. Other diagnostics test such as the heteroscedasticity test was also performed.

Chapter Summary

Chapter three of this study discussed the research methods and other ancillary issues such as research design, research approach, measurement of variables, data collection source and analysis, model specification and statistical diagnostics.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

Chapter four of this study presented the results and discussions in respect of the objectives of the study. The chapter first of all presented the strategies used by commercial banks in managing liquidity, followed by the relationship between cash management and financial performance, the relationship between liquidity management and financial performance, and the relationship between liability management and financial performance.

Liquidity Management Strategies of Listed Banks

The first objective of this study which dealt with the analysis of the liquidity management strategies of listed banks were presented and discussed. These strategies were obtained from the financial statement report presented by the banks on annual basis. Presented below were found to be the key liquidity management strategies.

1. Statement of Cash Flows

Listed banks were found to prepare cash flow statements which provided information on the changes arising from cash flows activities such as paying of borrowed amount, cash flows arising from financing and investing activities, and deposits (Annual Report of Guaranteed Trust Bank, 2017). According to Access Bank Plc Annual Report (2016), the use of statement of cash flows enables the bank to track and plan for cash arising from the issue of debts and equities, cash

interest payments, and to ascertain the increase or decrease in the cash and cash equivalent of the bank.

2. Credit and Liquidity Risk Management

The activities of banks are mainly financial in nature and there is financial risk inherent in the activities of banks. Banks in Ghana in their quest to manage their liquidity requirements undertake measures that minimise credit and liquidity risks. According to the Annual Report of Agricultural Development Bank (2015), they manage their liquidity resources through the use of credit and liquidity risk management. These processes are managed through setting risk limits, controls, monitoring and on-going identification of financial risks through the use of liquidity resources. To adequately manage the liquidity flows of banks and minimise the risk associated with banks' liquidity and liquidity credit, they appeal to indicators such as capital adequacy ratio, non-performing loans, and liquidity ratio among others (Access Bank' Annual Report, 2018).

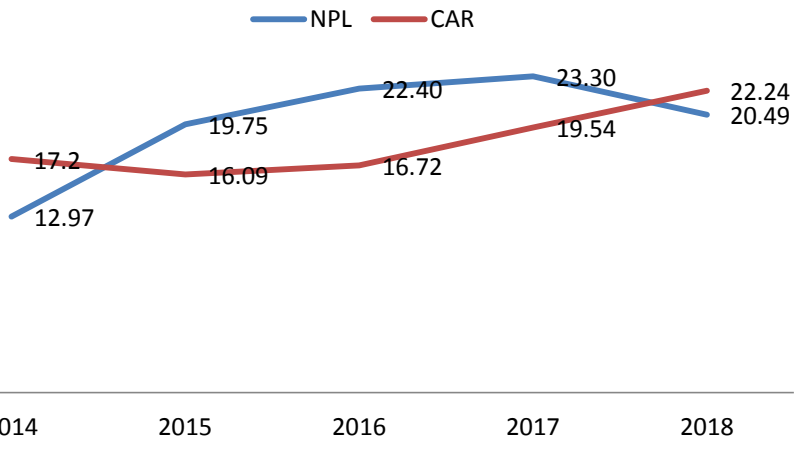

Figure 2: Average NPLs and CARs for Listed Banks

Source: Financial Statements of Listed Banks (2014-2018)

The study found that listed banks used main non-performing loans (NPL) ratio and the capital adequacy (CAR) ratio as a measure of credit risk and liquidity risk which invariably affects the liquidity flows of banks. From Figure 2, the average non-performing loans (non-performing loans as a ratio of gross loans) between 2014 and 2017 increased steadily and fell between 2017 and 2018. The implication for liquidity management is that, the amount of liquidity returns expected by listed banks during such periods run down. Rising non-performing loans in banks indicates that the liquidity risk management of banks has not been very effective and by extension banks have ineffective liquidity management strategies during 2014 to 2017 financial year. However, the turning point of the non-performing loans ratio after 2017 reflected a positive direction towards proper credit and liquidity management stance of the banks.

With respect to the capital adequacy ratio, the study found a downward trend from 2014 to 2016 from 17.2% to 16.72%. This implies that during these periods, the capital requirement of the listed banks deteriorated and this directly affects the ability of banks to honour their obligations in liquidity to their creditors. The average capital adequacy ratio for listed banks in Ghana from 2016 to 2018 however picked up from 16.7% to 22.24% which represented that fact that banks were more solvent, could withstand financial downturn as well as other unforeseen losses. It directly implies that banks are in a position to meet their short and long term obligation as they fall due. The study concluded that effectiveness management of liquidity resources during the period of between

2016 and 2018 could have contributed to the steady rise in the level of the capital adequacy ratio.

Effect of Cash Management on Financial Performance

The second objective of this study examined the effect of Cash Management on financial performance of listed banks in Ghana. Cash management was measured in terms of the cash ratio and cash turnover ratio while financial performance was in terms of returns on assets, returns on equity, profit margin and net interest margin. The result on this second objective is shown is Table 2.

Table 2: Effect of Cash Management on Financial Performance

Variable		ROA	ROE	PM	NIM
CR:	Coefficient	-10.07168	-73.82616	-109.7927	-0.905336
	Std. Error	(1.558164)	(10.32906)	(3.38987)	(2.282014)
	T-Statistic	[-6.463817]	[-7.147421]	[-8.199687]	[-0.396727]
	P-value	0.000	0.0000	0.0000	0.6936
CTR:	Coefficient	0.082251	0.241093	1.021099	0.110397
	Std. Error	(0.044739)	(0.296575)	(0.384459)	(0.065523)
	T-Statistic	[1.838466]	[0.812926]	[2.655936]	[1.684870]
	P-value	0.0731	0.4208	0.0111	0.0994
Constant:	Coefficient	6.867475	54.65559	72.93999	8.098723
	Std. Error	(1.458154)	(9.666099)	(12.53045)	(2.135544)
	T-Statistic	[4.709705]	[5.654359]	[5.821019]	[3.792346]
	P-value	0.0000	0.0000	0.0000	0.0005
R-square		0.6303	0.6342	0.7414	0.0988
F-statistic		35.806	36.411	60.219	2.3046
P-value		0.0000	0.0000	0.0000	0.1122
Durbin Watson		2.017	1.873	1.606	1.995

Source: Nyamador (2020)

NOTE: Standard errors are in bracket and t-statistic is in parentheses

The results in Table 2 indicated the relationship between cash ratio and cash turnover ratio and financial performance indicators. Based on the results on the returns on assets (ROA) model, the results showed that higher cash ratio negatively affected the returns on assets of listed banks. Thus, the coefficient of the cash ratio was -10.07168 with standard error of 1.558164, t-statistic of -6.463817 and probability value of 0.000 (which is less than 0.05). Based on the p-value, the study concluded that the negative relationship between the cash ratio and the returns on assets of listed banks is significant with the interpretation that a unit increase in the cash ratio decreases the returns on equity by 10.07168 units.

This results point out the fact that banks that keep excessive cash ratio would be operating inefficiently and according to Kinyanjui, Kiragu and Kamau (2017) banks that hold higher cash ratio does not necessarily reflect higher performance in terms of returns on assets. Ogbonnaya, Ekwe and Uzoma (2016) had stated that cash ratios that are overly higher than the industry benchmark could indicate inefficiency of the bank in utilizing its cash resources. The negative relationship between cash ratio and returns on assets could also imply that banks are not maximizing the benefits on loans; in the sense that excessive cash is held up by banks against release them to creating loan assets and generating returns on those assets.

On the basis of the above result and in line with the findings of Sulayman (2014), it can be further argued that higher cash ratio can negatively affect the returns on assets when banks when banks become skeptical about future

profitability decides to accumulate more cash to serve as a buffer to protect their capital requirement. Based on the above discussion, the study found from the financial statements of Agricultural Development Bank and Republic Bank that they recorded negative returns on assets with cash ratios excessively greater than 1 (for example: cash ratio was 3.89 for ADB in 2015 with ROA -3.7%; 3.32 for 2016 with ROA of -2.3% [Financial Statement of ADB (2016)]). The overall implication of this result for banks is that while cash ratio as a tool for managing cash flows is relevant in meeting the obligations of banks, excessive cash holding impair the returns which banks can generate on their assets. The results in Table 2 however revealed that cash turnover ratio of listed banks has positive effect on returns on assets but the p-value of 0.000 which is less than 5% was indicated that the relationship was not significant.

From Table 2, the model on returns on equity (ROE) on equity revealed that cash ratio affect the returns on equity of banks but cash turnover ratio does not. The relationship between cash ratio and returns on assets was negative and significant with coefficient of -73.82616 and standard error of 10.32906, t-statistic of -7.147421 and probability value of 0.000. On the contrary, the relationship between cash turnover ratio and returns on asset was positive with coefficient of 0.241093, standard error of 0.296575, t-statistic of 0.812926 and probability value of 0.4208. Based on the significant negative relationship between cash ratio and returns on equity, this study found that a unit increase in the cash ratio of banks leads to 73.82616 units' reduction in the returns on equity of stockholders.

There are empirical intuition behind the negative relationship between cash ratio and returns on equity. For example, Amuzu (2010) argues that the holding of too much cash in excess of that require for the working capital needs of a firm can affect the returns which the firm can give to equity holders through the loss of value of idle cash. It has been further argued by Khozhdel (2006) that banks holding too much cash with higher cash ratios end up producing lesser returns to their equity holders by the mechanism of raising the cost of capital of the firm. The justification for this argument is that banks that hold too much cash and thereby maintaining higher cash ratio have little need to borrow money since it has sufficient cash resources. This means that the tax benefits of debt is eroded leaving the banks with higher equity cost of capital. Theoretically, the higher cost of capital in the value discount model reduces the returns to equity holders. The other explanation to the reason why increasing cash ratio (cash flow) could reduce returns on equity is that holding more cash balance can serve as evidence of limited growth of banks. That is, banks having more than needed cash may not be having profitable opportunities into which excess cash can be invested to deliver returns to equity holders. Thus, the opportunity cost of holding idle cash is to the detriment of equity holders of banks.

On the basis of the profit margin model in Table 2, the study found that cash ratio and cash turnover ratio affect the profit margin of banks; but while the cash ratio negatively affect profit margin, the cash turnover ratio positively affect the profit margin. The coefficient of the cash ratio was -109.7927 with standard error of 3.38987, t-statistic of -8.199687, and p-value of 0.000 with the

implication that a unit increase in the level of cash ratio decreased the profit margin of listed banks by 109.7927 units. The coefficient of cash turnover ratio was 1.021099 with standard error of 0.384459, t-statistic of 2.655936 and p-value of 0.0111; with the implication that a unit increase in the cash turnover ratio increases the profit margin of firms by 1.021099 units. Based on the positive evidence found between cash turnover ratio and profit margin of listed banks in Ghana, the study explained that higher cash turnover ratio meant that banks were efficient in using their cash resources to generate revenues. The model on net interest margin (NIM) on the other hand showed that both cash ratio and cash turnover ratios do not affect the net interest margin of listed banks. In general terms, the findings of this study on the relationship between cash flow management and financial performance of listed banks revealed that cash ratio management of listed banks in Ghana negatively affect the returns on assets, returns on equity, and profit margin of listed banks while cash turnover ratio of listed banks positively affect the profit margins.

The diagnostics on the regression models in Table 2 produced R-squares of 0.6303 for ROA model with F-statistic of 35.806 and p-value of 0.0000 < 5%; 0.6342 for ROE model with F-statistic of 36.411 and p-value of 0.000 < 5%; 0.7414 for PM model with F-statistic of 60.219 and p-value of 0.0000 < 5%; and 0.0988 for the NIM model with F-statistic of 2.3046 and p-value of 0.1122 > 5%. Based on the probability values of the f-statistic, the study concluded that the R-squares for the ROA, ROE, and the PM models were significant and the variables were linearly related unlike the model for NIM where the R-square was found not

to be significant. The study therefore concluded that there was goodness of fit achieved for the regression models with the exception of the NIM model. Furthermore, the study found that there was no serial correlation in the error term of all the regression model as all the Durbin-Watson values as shown in Table 2 indicated closeness and approximation to 2.

Also, the result in Table 3 which is the Breusch-Godfrey serial correlation LM test was performed under the null hypothesis that no serial correlation exists in the residual of the regression model in Table 2. The null hypothesis was not rejected since the probability value of the F-statistic was more than 5% alpha level. Thus, the study revealed that no serial or autocorrelation exists in the residual of the regression model.

Table 3: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.30	Probability	0.3019
Obs*R-squared	3.339	Prob. Chi-Square	0.3207

Source: Nyamador (2020)

The test in Table 4 (the heteroskedasticity test) was performed to assess whether the error terms of the residuals in the regression model were constant over the sampled period. The null hypothesis for the test is that the error terms have constant variance. The probability value of the F-statistic was more than 5% alpha level; therefore, the study concluded that the error terms were constant.

Table 4: Breusch-Godfrey Heteroskedasticity Test

F-statistic	2.705	Probability	0.0582
Obs*R-squared	12.073	Prob. Chi-Square	0.0592

Source: Nyamador (2020)

Effect of Liquidity Management of Financial Performance

The third objective of the study examined the effect of liquidity management on the financial performance of listed banks in Ghana. This objective was examined by employing the least square regression model where the variables of liquidity (ratio of liquid funds to total deposits, liquid fund to total assets, and the ratio of liquid fund to interest bearing liabilities). Financial performance was measured by returns on assets, returns on equity, profit margin, and net interest margin.

The measurement of liquidity risk management was based the mode of measurement of liquidity by the Ghana Banking Survey (2019). According to the Ghana Banking Survey (2019), the banking industry for example kept high levels of liquidity such that the liquidity levels of banks in the banking industry (ratio of liquid funds to total deposits) reduced from 68% in 2014 to 66% in 2015 but since then has increased to 77%, 84%, and 91% in 2016, 2017 and 2018 respectively. This trend was followed by the liquidity average of listed banks in Ghana with the ratio of liquid funds to total deposits being 72% in 2014, 67% in 2015, 72% in 2016, 82% in 2017, and 83% in 2018 (Ghana Banking Survey, 2019). With this level of liquidity management, this study examined how the trends in the liquidity indicators of listed banks impacted on their returns on assets and equity, profit margins and net interest margins. The result of the findings for objective 3 was produced in Table 5.

Table 5: Effect of Liquidity Management on Financial Performance

Variable	ROA	ROE	PM	NIM
LFTD: Coefficient	-0.319104	-1.97754	-0.57421	-0.060416
Std. Error	(0.150642)	(0.71478)	(0.23452)	(0.006579)
T-Statistic	[-2.118294]	[-2.76664]	[-2.44844]	[-9.18315]
P-value	0.0345	0.0023	0.0301	0.000
LFTA: Coefficient	-0.968329	-0.83425	-0.30780	-0.374432
Std. Error	(0.14169)	(0.35211)	(0.06660)	(0.292096)
T-Statistic	[-6.834137]	[-2.36926]	[-4.62162]	[-1.28188]
P-value	0.0000	0.0045	0.0000	0.5931
LFTIBL: Coefficient	5.243422	2.25588	1.91420	1.713601
Std. Error	(9.059825)	(1.87840)	(1.99508)	(8.93999)
T-Statistic	[0.578755]	[1.20096]	[0.95946]	[0.191678]
P-value	0.5659	0.5762	0.0532	0.7643
Constant: Coefficient	-1.846627	-8.133182	-2.16068	7.060416)
Std. Error	(2.018584)	(13.78688)	(1.49180)	(1.991884
T-Statistic	[-0.914813]	[-0.589922]	[1.44837]	[3.544593]
P-value	0.3656	0.5585	0.0624	0.0010
R-square	0.5925	0.5898	0.6326	0.39290
F-statistic	10.459	9.7845	6.6219	3.422
P-value	0.0000	0.0000	0.0009	0.0143
Durbin Watson	1.8108	1.7013	2.3243	1.8326

Source: E-views Output, Nyamador (2020)

From Table 5, the result revealed that the ratio of liquid funds to total deposit (LFTD) and the ratio of liquid funds to total assets (LFTA) significantly affect financial performance in terms of returns on assets (ROA), returns on equity (ROE), profit margin (PM) and net interest margin (NIM). The study also revealed that the ratio of liquid fund to total interest bearing liabilities does not

significantly affect the financial performance indicators. With respect to the ROA model, the coefficient of liquid fund to total deposit was -0.319104, standard error = 0.150642, t-statistic = -2.118294 and p-value was 0.0345 < 5% alpha level. From these figures, it can be said that a unit increase in the ratio of liquid fund to total deposit decreases the returns on assets by 0.319104 units. Furthermore, with to the ROE model, the coefficient of liquid fund to total deposit was -1.97754, standard error = 0.71478, t-statistic = -2.76664 and p-value was 0.0023 < 5% alpha level. From the result, it can be said that a unit increase in the ratio of liquid fund to total deposit decrease the returns on equity by 0.1.97754 units.

The model with profit margin (PM) model in Table 5 produced coefficient of liquid fund to total deposit -0.57421, standard error = 0.23452, t-statistic = -2.44844 and p-value was 0.0301 < 5% alpha level. From these figures, it can be said that a unit increase in the ratio of liquid fund to total deposit decreases the profit margin of listed banks by 0.57421 units. On the contrary, the ratio of liquid funds to net interest margin showed a negative relationship with the coefficient = -0.060416, standard error = 0.006579, t-statistic = -9.18315, and p-value = 0.000 < 5% alpha level.

Based on the results on the ratio of liquid funds to total deposits, the study drew on the intuition that listed banks held consideration liquid funds in their vaults in the wake of the uncertainties that occurred in the banking landscape (Ghana Banking Survey, 2019). Furthermore, the negative relationship between the liquidity and financial performance can be traced to the requirement of the Central Bank of Ghana to commercial banks to meet the minimum capital

requirement of GHS400 million. Banks were therefore reluctant in lending to firms and individuals due to the growing uncertainty that characterized the banking and the financial sector as a whole. According to the Ghana Banking Survey (2019), banks lent to the government by means of investing in short term securities in the form of Treasury bills which are risk–free and not many banks invested liquid funds into high yielding assets. Hence, over the sampled period, the liquidity strategy adopted by banks in Ghana in the form of holding cash in liquid form did not contribute to increasing their profitability.

Moreover, the results in Table 5 revealed that the ratio of liquid funds to total assets negatively affected the financial performance of listed banks in the form of returns on assets, returns on equity, and profit margin but have no significant influence on profit margin. The results revealed that the ratio of liquid funds to total assets with respect to the returns on assets model had coefficient of -0.968329, standard error = 0.14169, t-statistic = -6.834137, and p-value of 0.000 < 5%. This result mean that a unit increase in the ratio of liquid funds to total assets decrease the returns on assets by 0.968329 units. The results further revealed that the ratio of liquid funds to total assets with respect to the returns on equity model had coefficient of -0.83425, standard error = 0.30780, t-statistic = -2.36926, and p-value of 0.0045 < 5%. This result mean that a unit increase in the ratio of liquid funds to total assets decrease the returns on equity by 0.83425 units. Moreover, the results in Table 3 showed that the ratio of liquid funds to total assets with respect to the profit margin model had coefficient of -0.30780, standard error = 0.006579, t-statistic = -4.62162, and p-value of 0.000 < 5%. This

result mean that a unit increase in the ratio of liquid funds to total assets decrease the profit margin by 0.30780 units.

The implication of the results obtained on the negative relationship between the ratio of liquid funds to returns on assets, returns on equity and profit margins could be as a result of the conservative approach took after by banks during the drive period of increasing the capital requirement. In other words, banks held a chunk of their assets in liquid form rather than to invest them in risky investment and this move was to ensure that they protect their assets against loses associated with high risk investments (Opoku, 2015). This conservative approach enhancing the liquidity position of banks but has negative consequence on the financial performance of banks since holding cash in liquid form does not earn interest income, and in fact higher holding more assets in liquid form in the face of uncertainty produce negative profitability and returns to equity if the real rate of returns on short term investments is insignificant (Musah, Kong, Mensah, Antwi, Bawuah, Donkor, Coffie & Osei, 2020). The study of Li, et al (2020) also confirmed findings in study that liquidity management where more assets of the company are held in liquid form negatively affects the returns of equity and assets. Based on the finding from this study, the study concludes that a conservative approach to liquidity management negatively affects financial performance.

The diagnostics on the regression models in Table 5 produced R-squares of 0.5925 for ROA model with F-statistic of 10.459 and p-value of 0.0000 < 5%; 0.5898 for ROE model with F-statistic of 9.7845 and p-value of 0.000 < 5%;

0.6326 for PM model with F-statistic of 6.6219 and p-value of 0.0009 < 5%; and 0.39290 for the NIM model with F-statistic of 3.422 and p-value of 0.0143 > 5%. Based on the probability values of the f-statistic, the study concluded that the R-squares for the ROA, ROE, PM, and NIM models were significant and the variables were linearly related. The study therefore concluded that there was goodness of fit achieved for the regression models. Furthermore, the study found that there was no serial correlation in the error term of all the regression model as all the Durbin-Watson values as shown in Table 5 indicated closeness and approximation to 2.

Effect of Liability Management on Financial Performance

The fourth objective of this study examined the effect of liability management on financial performance of listed banks by using banks' share of industry share of deposit and the logarithm of total liability of banks as measures of liability management against the profitability indicators of returns on assets, returns on equity, profit margin and net interest margin. According to the Ghana Banking Survey (2019), deposit constitutes the main regular liability and debt obligation of banks and from which they create assets in the form of loans. There is evidence of increasing rate of deposit in the banking industry but the rate of growth over the sampled period of 2014 to 2018 has slowed due to the loss of public confidence during the bank crises that occurred within the sample period amidst the loss of customer confidence (Ghana, Banking Survey, 2019). The growth rate of deposit between 2014 and 2016 for the banking sector grew by

20% but reduced to only 6% for the period of the banking crises after 2016. The findings in respect of the nexus between liability management and financial performance were indicated by Table 6.

Table 6: Effect of Liability Management on Financial Performance

Variable		ROA	ROE	PM	NIM
TL:	Coefficient	-1.1629	-1.2840	-11.506	-1.3481
	Std. Error	(0.5093)	(0.4878)	(4.3878)	(0.6382)
	T-Statistic	[-2.2833]	[-2.632]	[-2.6223]	[-2.1122]
	P-value	0.0283	0.0122	0.0121	0.0413
DEP:	Coefficient	-0.2064	-0.2516	-9.875	1.59884
	Std. Error	(0.0829)	(0.0793)	(4.523)	(0.65548)
	T-Statistic	[-2.4876]	[-3.1720]	[-2.183]	[-2.43918]
	P-value	0.0175	0.0030	0.0347	0.0195
Constant:	Coefficient	9.2036	11.7899	-58.510	11.2030
	Std. Error	(3.6821)	(3.5260)	(28.637)	(4.1773)
	T-Statistic	[2.4996]	[3.34369]	[-2.0431]	[2.6818]
	P-value	0.0170	0.0019	0.0474	0.0108
R-square		0.6290	0.4312	0.5110	0.41083
F-statistic		4.0966	5.1835	3.8222	3.7912
P-value		0.0257	0.0102	0.0299	0.0345
Durbin Watson		2.2599	2.2761	1.9414	1.9222

Source: Nyamador (2020)

From the result in Table 6, the total liabilities (TL) values were logged due to the size of it. The result indicated by Table 4 indicated that total liabilities of banks significantly affect returns on assets, returns on equity, profit margin and net interest margin. Total liabilities and returns on assets, returns on liabilities, profit margin and net interest margin were found to be negatively related.

Regarding the model for returns on assets, the coefficient for total liabilities = -1.1629, standard error = 0.5093, t-statistic = -2.2833, and p-value = 0.0283 < 5%. This mean that a unit increase in total liabilities reduce the returns on assets by 1.1629 units. For the regression model for returns on equity, the coefficient for total liabilities = -1.2840, standard error = 0.4878, t-statistic = -2.632, and p-value = 0.0122 < 5%. This mean that a unit increase in total liabilities reduce the returns on equity by 1.2840 units. Furthermore, the regression model for profit margin indicated a coefficient for total liabilities to be -11.506, standard error = 0.4.3878, t-statistic = -2.6223, and p-value = 0.0121 < 5%. This mean that a unit increase in total liabilities reduce the profit margin level by 11.506 units. More so, the model for net interest margin produced a coefficient for total liabilities = -1.3481, standard error = 0.6382, t-statistic = -2.1122, and p-value = 0.0413 < 5%. This mean that a unit increase in total liabilities reduce the profit margin of banks by 1.3481 units.

The result indicated in Table 6 indicated that the share of banks' deposit in the industry significantly affect returns on assets, returns on equity, profit margin and net interest margin. The deposit and returns on assets, returns on equity, profit margin and net interest margin were found to be negatively related. Regarding the model for returns on assets, the coefficient for deposit = -0.2064, standard error = 0.0.0829, t-statistic = -2.4876, and p-value = 0.0175 < 5%. This mean that a unit increase in deposit reduce the returns on assets by 0.2064 units. For the regression model for returns on equity, the coefficient for deposit = -0.2516, standard error = 0.0793, t-statistic = -3.1720, and p-value = 0.0.0030 < 5%. This mean that a unit

increase in deposit reduce the returns on equity by 0.2516 units. Furthermore, the regression model for profit margin indicated the coefficient for deposits to be -9.875, standard error = 4.523, t-statistic = -2.183, and p-value = 0.0347 < 5%. This mean that a unit increase deposit reduce the profit margin level by 9.875 units. More so, the model for net interest margin produced a coefficient for deposits = -1.59884, standard error = 655484, t-statistic = -2.439182, and p-value = 0.0195 < 5%. This mean that a unit increase in deposit reduce the profit margin of banks by 1.59884 units.

The negative relationship found between liability management and financial performance found in this study agrees with the result obtained in the study of Gyekyi (2011) whose result showed that there is a negative relationship between liability management and profitability with the explanation that increased liability of the bank reduced its profitability while the reduction of the banks' liability increased the profitability of the bank. Furthermore, the findings of this study agree with that of Belete (2013) who produced the evidence that the link between liability management and financial performance is negative and varied across liabilities. According to Tee (2017) liability of banks in the form of loan debt and large deposits coupled with higher rate of non-performing loans negatively influence the financial performance in the short term even though the impact could be positive in the long term.

Chapter Summary

Chapter four of this study presented the results and discussions in respect of the objectives of the study. The chapter also presented the strategies used by commercial banks in managing cash, as well as the relationship between cash flow management and financial performance. The relationship between liquidity management and financial performance was also analysed as well as the relationship between liability management and financial performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter climaxed the study with the presentation of the summary of key findings, conclusions as well as the recommendations. The chapter also presented suggestions for further studies.

Summary of Findings

The study examined the liquidity management and financial performance of listed banks in Ghana by employing data on nine listed banks from 2014 to 2018. The specific objective of the study was in respect of analysing the effect of liquidity, cash management, and liability management on financial performance of listed banks. Financial performance was mainly measured by using returns on assets, returns on equity, profit margin and net interest margin. The study was based on the liquidity preference theory, the explanatory design and the quantitative approach was also employed. The study processed the data using econometric views and the objectives of the study were analysed using least square regression model. Based on the objectives of the study the following findings were obtained.

1. On the basis of the first objective, the study found that banks employ cash flow statements, liquidity and credit management as among the key strategies used in managing cash.

2. On the basis of the second objective which assessed the effect of cash flow management on the financial performance of listed banks in Ghana, the study found that cash ratio and returns on equity, returns on assets, and profit margin were negatively related while cash turnover ratio and profit margin were related indirectly.
3. Based on the third objective which examined the effect of liquidity management on financial performance of listed banks, the study found that banks within the sample period employed conservative liquidity management and hence held more assets and portion of deposits in liquid form; hence the increasing levels of banks' liquidity was found to negatively influence the returns on assets, returns on equity, and the profit margin of listed banks.
4. Based on the fourth objective which focused on examining the relationship between liability management and financial performance of listed banks, the study found that liability of banks do not directly influence the financial performance of listed banks. This result was interpreted that the period of accumulation of liability differs from the period where assets created from liabilities were realized. Hence in the short term, liability negatively affected the financial performance of listed banks.

Conclusions

On the bases of the findings of this study, the following conclusions were made.

1. Based on the first findings, this study concluded that listed banks in Ghana use statement of cash flow, the use of credit and liquidity management through the management of non-performing loans and capital adequacy ratio were mainly used in managing cash positions of listed banks in Ghana.
2. Based on the second finding, this study concluded that times of holding too much cash in excess by banks decrease their financial performance.
3. With regard to the third finding, the study concluded that conservative liquidity management whereby greater percentage of deposit and assets are held in cash reduced the financial performance of banks.
4. On the basis of the fourth findings, the study concluded that the mismatch in the time of the creation of assets and revenues out of liabilities (deposits and debts) negatively affect financial performance in the short term.

Recommendations

Based on the conclusions drawn, the study made the following recommendations.

1. Management of listed banks should adequately screen loan clients to reduce the negative impact of non-performing loans and in that process to build strong capital adequacy and cash flows.
2. The second recommendation was that management of listed banks should maintain cash ratios up to the estimated cash requirements of their firms and avoid the excessive pile up of cash which reduce the economic value of their assets, returns and profitability.

3. Management of listed banks may use the conservative approach to building their assets in the form of liquid cash but they must at the same time be aware of the negative consequences of adopting conservative approach to managing liquidity on the financial performance of their firms.
4. Management of listed banks should align their liabilities in such a way that they can create short term assets such as short term loans to good credit customers so as to generate revenue to match their liabilities.

Suggestions for Further Studies

Future studies may consider collecting data on all the 23 universal and commercial banks in Ghana so as to expand the data point and add to the evidence obtained in this study.

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